WHAT IS CLAIMED IS:

Sub A3

1. A method of obtaining a composition substantially enriched in a specific cell type comprising:

contacting a sample of cells with at least one binding agent specific for an serpentine cell surface marker such that the binding agent binds specifically to a cell or cells having the marker in the sample; and

separating the cell or cells bound by the binding agent from the sample, thereby obtaining a composition substantially enriched in a specific cell type.

2. The method according to claim 1, further comprising separating the cell or cells bound by the binding agent by selecting for at least one additional marker associated with a specific cell type.

3. The method according to claim 2 wherein the additional marker is selected from the group consisting of CD-34, Thy-1, rho, Cdw109, protocadherins and cell adhesion molecules (CAMs).

4. The method of claim 1, wherein the binding agent is selected from the group consisting of a ligand and an antibody.

Sub A4

5. The method of claim 4, wherein the antibody is monoclonal or polyclonal or derivative thereof.

6. The method of claim 1, wherein the binding agent is immobilized on a solid support.

Sub A5

7. The method of claim 1, further comprising analyzing the DNA of the cells.

8. The method of claim 7, wherein the analyzing is on a microchip.

Sub A6

9. The method of claim 7, wherein the analyzing is by Southern Blot analysis.

10. The method of claim 1, wherein the at least one binding agent is multiplexed such that more than one binding agent is utilized simultaneously.

11. ~~A method of identifying a cell type comprising detecting expression of at least one~~ serpentine receptor, wherein the presence of the serpentine receptor is indicative of a cell type.

12. The method of claim 11, wherein the receptor is detected using a binding agent that binds to the serpentine receptor.

13. The method of claim 12, wherein the binding agent is an antibody or derivative thereof.

14. The method of claim 13, wherein the antibody is monoclonal.

15. The method of claim 11, wherein identification is by detecting a polynucleotide encoding the at least one serpentine receptor.

16. The method of claim 14, wherein the polynucleotide is DNA or RNA.

17. The method of claim 12, wherein the binding agent is a ligand.

18. The method of claim 11, wherein the cell is a totipotential germ cell.

19. The method of claim 11 or 15, wherein the detecting is on a microchip.

20. The method of claim 16, wherein the analyzing is by Southern Blot analysis.

21. The method of claim 11, wherein the detetion of the polynucleotide is multiplexed such that more than one probe which binds to the polynucleotide is utilized simultaneously.

22. A cell obtained by the method of claim 1.

23. A method for producing a specific cell lineage or organ type or an organism comprising obtaining a cell by the method of claim 1 and treating the cell under conditions and for a time sufficient to produce the lineage, organ or organism.

24. The method of claim 23, wherein the conditions include nuclear transplantation.

25. A method for delivery of an agent to a specific cell type comprising performing multiplex binding of a ligand or agent to a cell surface receptor, such that delivery is only to a particular cell type.

26. The method of claim 25, wherein at least one of the ligands or agents that binds to the receptor includes a targeting sequence for delivery to the nucleus of the cell.

27. A method of treating a cell proliferative disorder in a subject, the method comprising:
administering an effective amount of an antibody coupled to a first factor wherein the antibody binds to a first serpentine antigen on the surface of a cell associated with the disorder;
administering a second antibody coupled to a second factor, wherein the antibody binds to a second ligand on the surface of a cell, different from the first ligand; and
wherein the first and second factors react to form a cytotoxic drug, thereby inhibiting the growth of the cell.

28. The method of claim 27, wherein the antibody is selected from the group consisting of polyclonal, monoclonal and chimeric antibodies or derivatives thereof.

29. The method of claim 27, wherein the first factor is a prodrug and the second factor is an enzyme that cleaves the prodrug.

30. The method of claim 27, wherein the first factor is a proenzyme and the second factor is an activator of the proenzyme.

31. The method of claim 30, wherein the enzyme is selected from the group consisting of alkaline phosphatases, proteases, arylsuflatses, beta lactamases, penicilin amidases, D-alanyl carboxypeptidases, and cytosine deaminases.

32. The method of claim 27, wherein the adminstering is ex vivo.

33. The method of claim 27, wherein the adminstering is in vivo.

34. A method of detecting a cell proliferative disorder in a sample, the method comprising contacting the sample with a first antibody coupled to a factor wherein the antibody is reactive with an serpentine ligand on the surface of a cell having a cell proliferative disorder; contacting the sample with a second antibody coupled to a second factor, wherein the antibody is reactive to a second ligand on the surface of a cell; and wherein the first and second factors react to form a reporter agent.

35. The method of claim 34, wherein the antibody is selected from the group consisting of polyclonal, monoclonal and chimeric antibodies.

36. The method of claim 34, wherein the first factor is a pro-factor and the second factor is an enzyme that cleaves the pro-factor.

37. The method of claim 34, wherein the enzyme is selected from the group consisting of alkaline phosphatases, proteases, arylsulfatases, beta lactamases, penicilin amidases, D-alanyl carboxypeptidases, and cytosine deaminases.

38. The method of claim 34, wherein the reporter agent is selected from the group consisting of a bioluminescent compound, a chemiluminescent compound, a metal chelating agent, and an enzyme.

39. A method for detecting at least one variation in at least one serpentine polynucleotide in a cell, wherein the variation is indicative of a particular lineage comprising:
a) contacting a sample containing nucleic acid isolated from a first cell with at least one probe that hybrides to the at least one serpentine polynucleotide in the sample, wherein the serpentine polynucleotide is associated with a particular lineage or cell type, thereby forming a hybridization complex; and b) detecting the hybridization complex, wherein the presence of the hybridization complex correlates with the presence of a serpentine polynucleotide having a nucleic acid sequence complementary to the probe, and wherein the presence of the complex is indicative of a particular lineage or cell type.

40. The method of claim 39, wherein the nucleic acid material is amplified by the polymerase chain reaction prior to the hybridizing step.

41. A method for producing a lineage-specific cell type comprising contacting a cell of a first lineage with a lineage determining effective amount of an agent for a time and

under conditions such that the cell is committed to a second lineage, thereby producing a lineage-specific cell type.

42. The method of claim 41, wherein the agent is selected from the group consisting of an antibody, a ligand, a hormone, a growth factor, an antisense oligonucleotide and any combination thereof.

43. The method of claim 41, further comprising isolating cells of the second lineage from the other cells.

44. The method of claim 41, wherein the lineage is effected by contacting the cells with an agent that modulates Notch or related family members.

45. The method of claim 41, wherein the lineage is effected by contacting the cells with an agent that modulates Delta or related family members.

46. A method for maintaining a lineage-specific cell type comprising contacting the cell with a lineage maintaining effective amount of an agent such that the cell is committed to the lineage.

47. The method of claim 46, wherein the agent is selected from the group consisting of an antibody, a ligand, a hormone, a growth factor, an antisense oligonucleotide and any combination thereof.

48. The method of claim 46, wherein the maintaining the lineage is effected by contacting the cells with an agent that modulates Notch or related family members.

49. The method of claim 46, wherein the maintaining the lineage is effected by contacting the cells with an agent that modulates Delta or related family members.